



H2 Database



tutorialspoint

SIMPLY EASY LEARNING

www.tutorialspoint.com

About the Tutorial

H2 is an open-source lightweight Java database. It can be embedded in Java applications or run in the client-server mode. H2 database can be configured to run as in-memory database, which means that data will not persist on the disk.

In this brief tutorial, we will look closely at the various features of H2 and its commands, one of the best open-source, multi-model, next generation SQL product.

Audience

This tutorial is designed for all those software professionals who would like to learn how to use H2 database in simple and easy steps. This tutorial will give you a good overall understanding on the basic concepts of H2 database.

Prerequisites

H2 database primarily deals with relational data. Hence, you should first of all have a good understanding of the concepts of databases in general, especially RDBMS concepts, before going ahead with this tutorial.

Disclaimer & Copyright

© Copyright 2016 by Tutorials Point (I) Pvt. Ltd.

All the content and graphics published in this e-book are the property of Tutorials Point (I) Pvt. Ltd. The user of this e-book is prohibited to reuse, retain, copy, distribute or republish any contents or a part of contents of this e-book in any manner without written consent of the publisher.

We strive to update the contents of our website and tutorials as timely and as precisely as possible, however, the contents may contain inaccuracies or errors. Tutorials Point (I) Pvt. Ltd. provides no guarantee regarding the accuracy, timeliness or completeness of our website or its contents including this tutorial. If you discover any errors on our website or in this tutorial, please notify us at contact@tutorialspoint.com.

Table of Contents

About the Tutorial	1
Audience.....	1
Prerequisites.....	1
Disclaimer & Copyright.....	1
Table of Contents	2
H2 – BASICS	4
1. H2 – Introduction	5
2. H2 – Installation.....	7
Verify Java Installation.....	7
Install H2 Database.....	7
H2 – DATA MANIPULATION	11
3. H2 – Select	12
4. H2 – Insert	15
5. H2 – Update	17
6. H2 – Delete	20
7. H2 – Backup	22
8. H2 – Call.....	23
9. H2 – Explain	24
10. H2 – Merge	25
11. H2 – Show	28
H2 – DATA DEFINITION	29
12. H2 – Create	30
Create Table	30
Create Schema.....	31
Create Sequence.....	32
13. H2 – Alter.....	33
Alter Table Add.....	33
Alter Table Add Constraint	33
Alter Table Rename Constraint	34
Alter Table Alter Column	34

14. H2 – Drop	36
Drop Table	36
Drop Schema	36
Drop Sequence	37
Drop View	37
15. H2 – Truncate	38
16. H2 – Commit	39
17. H2 – Grant	40
Grant Right	40
Grant Alter Any Schema	40
18. H2 – Savepoint	42
19. H2 – Rollback	43
20. H2 – JDBC Connection	44
Create Table	44
Insert Records.....	47
Read Record	49
Update Records	52
Delete Records	55

H2 – Basics

1. H2 – INTRODUCTION

H2 is an open-source lightweight Java database. It can be embedded in Java applications or run in the client-server mode. Mainly, H2 database can be configured to run as in-memory database, which means that data will not persist on the disk. Because of embedded database it is not used for production development, but mostly used for development and testing.

This database can be used in embedded mode or in server mode. Following are the main features of H2 database:

- Extremely fast, open source, JDBC API
- Available in embedded and server modes; in-memory databases
- Browser-based Console application
- Small footprint: Around 1.5MB jar file size

Features of H2 Database

The main features of H2 Database are as follows:

- It is an extremely fast database engine.
- H2 is open source and written in Java.
- It supports standard SQL and JDBC API. It can use PostgreSQL ODBC driver too.
- It has embedded and Server mode.
- H2 supports **clustering** and **multi-version concurrency**.
- It has strong security features.

Additional Features

Following are some additional features of H2 Database:

- H2 is a disk-based or in-memory databases and tables, read-only database support, temporary tables.
- H2 provides transaction support (read committed), 2-phase-commit multiple connections, table level locking.
- H2 is a cost-based optimizer, using a genetic algorithm for complex queries, zero-administration.
- H2 contains scrollable and updatable result set support, large result set, external result sorting, functions can return a result set.
- H2 supports encrypted database (AES), SHA-256 password encryption, encryption functions, and SSL.

Components in H2 Database

In order to use H2 Database, you need to have the following components:

- A web browser
- A H2 console server

This is a client/server application, so both server and client (a browser) are required to run it.

2. H2 – INSTALLATION

H2 is a database written in Java. We can easily embed this database to our application by using JDBC. We can run this on many different platforms or any version of Java Runtime Environment. However, before installing the database, there should be Java installed in the system.

Verify Java Installation

If JDK is installed in the system, try the following command to verify the Java version.

```
java -version
```

If JDK is successfully installed in the system, then we will get the following output.

```
java version "1.8.0_91"  
Java(TM) SE Runtime Environment (build 1.8.0_91-b14)  
Java HotSpot(TM) 64-Bit Server VM (build 25.91-b14, mixed mode)
```

If JDK is not installed in the system, then visit the following link to [Install JDK](#).

Install H2 Database

We can run this database on many different platforms. In this chapter, we will learn about H2 Database installation on Windows.

Following are the steps to install H2 Database on Windows operating system.

Step 1: Download H2 Setup File

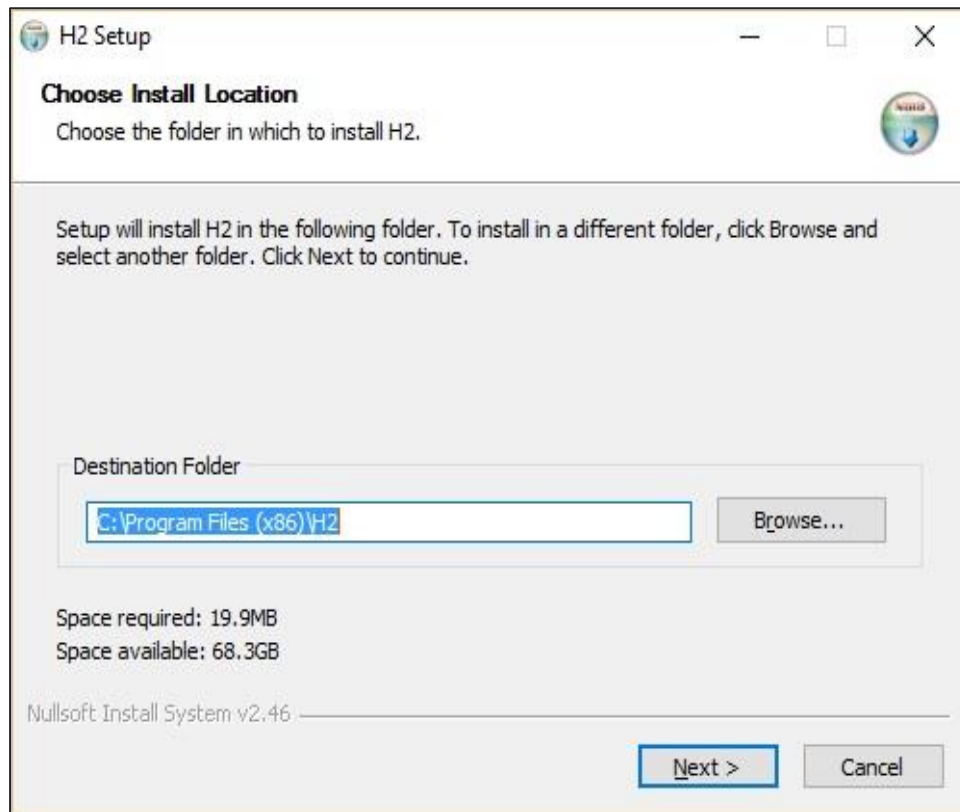
Download the latest version of [H2 Database](#) from the given link. In this link, you will get the latest version of H2 database in two types. One is Windows Installer type (that is .exe file) and second is Platform-Independent zip file for other operating systems.

Click the Windows installer for downloading the Windows supportable H2 database after downloading the .exe file. In this case, we are using H2 Database with the version 1.4.192.

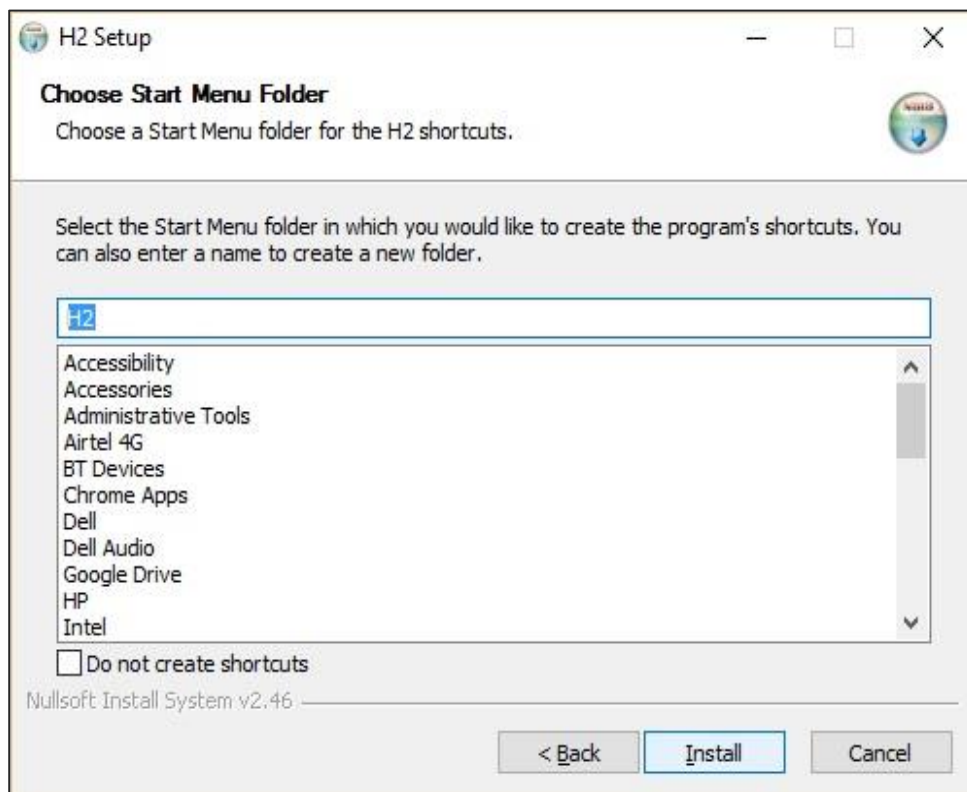
Step 2: Install H2 Database

After downloading we get the H2 Windows installer file (i.e. h2-setup-yyyy-mm-dd.exe) in the Downloads directory. To start the installation process of H2 Database, double click on the installer file.

The following screen is the first step in the installation process. Provide a path where we want to install the H2 database server as shown in the following screenshot.



As seen in the above screenshot, by default it will take **C:\ProgramFiles (x86)\H2** as the destination folder. Click next to proceed to the next step. The following screen pops up.



In the above screenshot, click the Install button to start the installation process. After installation, we get the following screenshot.



Click Finish to complete the installation process.

Step 3: Verify H2 Database Installation

After installation, let us verify the database installation in the system. Click Windows -> type H2 Console -> Click H2 console icon. Connect to the URL <http://localhost:8082>. At the time of connecting, the H2 database will ask for database registration as shown in the following screenshot.

End of ebook preview
If you liked what you saw...
Buy it from our store @ [**https://store.tutorialspoint.com**](https://store.tutorialspoint.com)